

BIDIRECTIONAL, CO-LOCATED LASER AND DETECTOR

ABSTRACT OF THE DISCLOSURE

Bi-directional optical signal transmission apparatus and methods are disclosed. In one embodiment, an optical detector is configured to receive an optical signal from an end of an optical fiber. An optical element is located at the detector surface and is configured to receive and direct a laser beam. A laser beam is directed by the optical element through the end into the optical fiber substantially parallel with the principal axis.